Amendments to the Claims:

Please amend the claims as follows:

1-9. (canceled).

10. (currently amended) A sensor apparatus for determination of an internal pressure of a motor vehicle tire, comprising:

at least one measurement sensor in the form of an optical fiber; [[and]]

a temperature sensor which measures a tire temperature; and

an evaluation and computer unit,

wherein

when light is passed through the optical fiber and the optical fiber is stressed, the light is changed,

the evaluation and computer unit detects changes in light passing through the optical fiber and determines at least one of the shape and size of a contact area of the tire as an indicator of the internal pressure in the tire, and

the evaluation and computer unit detects tire heating from the temperature sensor, and a difference between a nominal pressure and an actual pressure is determined with consideration of the detected tire heating and an estimated tire flexing work.

11. (original) The sensor apparatus as claimed in claim 10, wherein an evaluation unit uses low-pass filtering to eliminate a wheel load influence on at least one of the shape and the size of the tire contact area.

12. (original) The sensor apparatus as claimed in claim 10, wherein the at least one measurement sensor is connected to the evaluation and computer unit by an optical transmission device.

13. (original) The sensor apparatus as claimed in claim 10, wherein the evaluation and computer unit is arranged in the tire.

14. (original) The sensor apparatus as claimed in claim 13, wherein the evaluation and computer unit is vulcanized into the tread of the tire.

15. (canceled)

16. (original) The sensor apparatus as claimed in claim 10, wherein the evaluation and computer unit includes an evaluation unit for a fiber-optic Bragg grating system, and change in light wavelength is determined with passive edge filters on independent channels.

17. (original) The sensor apparatus as claimed in claim 10, further comprising:

a superluminescent diode as a light source for the light passed though is the optical fiber.

/A.A./ 09/26/2008

18. (original) The sensor apparatus as claimed in claim ~~15~~, wherein the tire temperature is measured continuously by the temperature sensor, and tire flexing work is determined by the evaluation and computer unit from the measured tire temperature.

19. (new) A method of determining an internal pressure of a motor vehicle tire, comprising the steps of:

detecting a change in light passed through an optical fiber located in the tire; and

determining with an evaluation and computer unit from the detected change in light passing through the optical fiber at least one of the shape and size of a contact area of the tire; and

determining an indication of the internal pressure in the vehicle tire from the determined at least one of the shape and size of a contact area of the tire.

20. (new) The method of claim 19, wherein the evaluation and computer unit uses low-pass filtering to eliminate a wheel load influence on at least one of the shape and the size of the tire contact area.

21. (new) The method of claim 19, wherein the optical fiber is connected to the evaluation and computer unit by an optical transmission device.

22. (new) The method of claim 19, wherein the evaluation and computer unit is arranged in the tire.

23. (new) The method of claim 22, wherein the evaluation and computer unit is vulcanized into the tread of the tire.

24. (new) The method of claim 19, wherein the evaluation and computer unit includes an evaluation unit for a fiber-optic Bragg grating system, and change in light wavelength is determined with passive edge filters on independent channels.

25. (new) The method of claim 19, further comprising the steps of:

detecting a tire temperature from a tire temperature sensor;

determining tire heating with the evaluation and computer unit from the detected tire temperature; and

determining a difference between a nominal tire pressure and an tire actual pressure based on consideration of the determined tire heating and an estimated tire flexing work.

26. (new) The method of claim 19, wherein a superluminescent diode is a light source for the light passed though the optical fiber.

27. (new) The method of claim 25, wherein the tire temperature is measured continuously by the temperature sensor, and tire flexing work is determined by the evaluation and computer unit from the measured tire temperature.